ENVIRONMENTALLY SPEAKING

What Today's Leaders Talk About

Volume 3, Issue 1 A Quarterly Army Environmental Policy Institute Publication December 2002

featured article

Ecosystem Management Policy Evaluation

By John Fittipaldi, JFittipaldi@aepi.army.mil

INSIDE

DoD Region 4 Takes on EMS....page 4

The Installation EMS Implementation Process: A Stepwise and Hierarchical Approach....page 4

Environmental Sustainability in Latin America and the Caribbean ...page 5

AEPI War College Fellows Research Abstracts...page 6

Identifying Emerging OEH Issues...page 7

WEBSITE REVIEW: The ANSER Institute for Homeland Security...page 7

AEPI BOOK REVIEW: On Vitrifying Wastes Using A Plasma Arc Torch ...page 8

The Department of Defense (DoD) identified ecosystem management as its land and water management approach of choice in the mid-nineties. Until now however, no retrospective study has been conducted to determine how effectively ecosystem management policy is being implemented.

The goal of this study is to provide insights to the level of ecosystem management implemented across the military services. Objectives included performing a policy gap analysis of the individual military services' conservation guidance and regulations to determine if they carry through the requirements set out by DoD Instruction, *Environmental Conservation Program* (DoDI 4715.3), developing a protocol to evaluate ecosystem management implementation, and applying this procedure through case study.

After researching evaluation methods, it was determined that the study would use what is termed a multiple case version of the classic single case study. Interview questions were developed based on DoD's ten Principles of Ecosystem Management (DoDI 4715.3). These questions were used at each installation visit (i. e., case study). Two cases study per service were conducted to give eight case studies.

A policy gap analysis of the services' natural resources regulations and guidance was used as a basis for evaluating ecosystem management. The gap analysis found that for several key areas guidance is lacking across all the services.

- Information or sufficient detail was lacking on (1) ecosystem management, (2) inventorying, (3) monitoring, (4) adaptive management, and (5) partnerships.
- The subsequent case study analyses found these same key areas problematic or unclear

The gap analysis found that several key areas lacked guidance across all the services.

to the installation natural resources managers. Some technical aspects of ecosystem management are poorly understood and this can become an impediment to successful implementation of ecosystem management.

- DoD ecosystem management policy is not reflected in Service-level policy and implementation guidance
- Organizational issues impede adoption of ecosystem management principles. Ecosystem management implementation

continued

requires more authority than that given to the resource managers who are far removed from the commander and are low in the installation organizational structure.

- Ecosystem management is incorrectly viewed as a separate activity requiring its own line item in natural resources budgets. Funding non-compliance related ecosystem management projects is difficult and this hinders effective implementation.
- An adequate number of Staff trained in ecosystem management principles is lacking. In general, natural resources staff is few and in many cases consist of only one natural resources manager. With the breadth of responsibility needed for ecosystem management, lack of staff can directly limit implementation.
- Low organizational status of natural resource managers impedes effective communication with others on the installation and in the region, and furthers reluctance among managers to partner with non-military entities in the region. Ineffective communication can also adversely impact implementation.

DoD can enhance readiness by employing ecosystem management to help enhance long-term quality of the natural resources entrusted to our care.

DoD can enhance readiness by employing ecosystem management to help enhance long-term quality of the natural resources entrusted to our care. To ensure that ecosystem management is fully implemented and integrated within the day-to-day operations of all military departments, the following policy recommendations are offered:

- Promulgate and disseminate Service-level policy and guidance.
- Raise Natural Resource (NR) Management Offices higher in the installation chain of command, and enhance Regional Environmental Offices' role in their ability to support installation NR managers and connect them with others in the region.
- Move closer to the goal of the DoD Instruction, where ecosystem management principles become not just special projects isolated from the rest of an installation's environmental program, but rather where they form the basis of decision-making at the installation level. Require proposals for new or continuing special projects to demonstrate how they will accomplish or embody the ten principles in the Instruction, and require all INRMPs, as well as the projects proposed to implement them, to demonstrate how they will support the accomplishment of ecosystem management goals and objectives.
- Train staff and inform leaders at installations and Regional Environmental Offices on the principles of ecosystem management as described in the existing DoD Instruction and the recommended new Service-level policy and guidance.
- Empower natural resource managers with the authority to enter into agreements with other land managing entities, in the region. Installation commanders may realize that delegation of authority is in fact an exercise in authority.

Mr. John Fittipaldi and Mr. John Wuichet, both from AEPI, served as contributing authors and editors of this study that is now going to publication.

DoD Region 4 takes on EMS

By Hoge Greene, Senior Fellow, Greene@aepi.army.mil

DoD Region 4 Environmental Management System (EMS) Training and implementation initiative kicked off on 6-7 November 2002. All DoD services were represented totaling fifty (50) installations. Twenty (20) Installations will be selected to initiate an EMS on their installation with assistance from four regional universities (University of Louisville (KY); University of Tennessee, University of South Carolina, and Georgia Institute of Technology).

It is the Army's policy to promote mission readiness by continually upgrading environmental performance through the adoption of the International Standard, ISO 14001, for Environmental Management. ISO 14001 sets standards for: environmental policy, planning, implementation and operations, performance checks and corrective action, management reviews and continual improvement. In other words, it is a guide for ensuring that organizations manage to a standard, does what it says it will do, and conducts regular audits. December 31, 2005 is the target date for installations to have an EMS in place.

It is the Army's policy to promote mission readiness by continually upgrading environmental performance...

The Region 4 EMS initiative is the result of decisions and bold moves made several years ago by Mr. Ray Fatz, the Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health. His efforts supported a Regional Pollution Prevention Initiative in the Southeast that is now about to pay huge dividends. As DOD's Executive Agent for Region 4, Mr. Fatz leveraged the nation's only regional P2 partnership into an EMS effort that is poised to "jump start" the Army's and DoD's EMS programs. As an interim measure, (POM funding for EMS is still working its way through channels), this regional P2 effort allowed 100+ key managers to receive initial (Tier I) training from the 4 universities. Mr. John Paul Woodley, Assistant Deputy Undersecretary of Defense (Environment) was the keynote speaker with comments from Dr. A. Stanley Meiburg, the Deputy Regional Administrator of EPA Region 4 and Mr. Bob Kerr, Director, P2 Assistance Division, State of Georgia.

Participant feed back indicates the training was first-class and better than other opportunities to date. Three of the DOD EMS test sites (Fort Lewis WA, Eglin AFB, FL; and Camp Le Jeune, NC) highlighted the training by sharing their lessons learned with the audience.

The next step in this plan is a friendly competition between the military installations in the southeast to select the 20 sites to receive the, more intense, Tier 2 training. The Tier 2 training will involve more focused coaching, mentoring, and actual EMS implementation. In order to compete for being selected as one of these sites, the Garrison Commander of an installation has to send a request into the DoD Regional Environmental Coordinator (REC) confirming their commitment to the process. That commitment includes (1) their full support for a 12-15 month initiative to implement EMS, (2) a willingness to commit personnel time and fiscal resources to participate, (3) a certain level of travel, (4) a willingness to host a workshop and/or mentor others, (5) a willingness to help document implementation performance data, and (6) a willingness to submit a brief plan for EMS implementation at the installation prior to engagement. This is truly a partnership among installations and the Universities, all working together where everyone wins.

The Installation EMS Implementation Process: A Stepwise and Hierarchical Approach

By Rick Sinclair, SE IMA; Manette Messenger, SE IMA; David Eady, AEPI; and Ron Webster, AEPI

While Environmental Management System (EMS) requirements are recognized, the mechanisms for optimal implementation are less clear. Many different approaches can be used: most often along organizational lines (the Directorate of Public Works (DPW), the Garrison Commander, or other "stovepiped" approach); compatible with both the tenets of EMS and compliance requirements. However, both Army history (with the various trends in management elixirs) and business sense (sustainability principles) suggest better implementation along holistic lines, independent of traditional turf and organizational boundaries, exploiting the synthesis and symbiosis that cross-boundary organizational analysis always affords. Holistic, non-"stovepipe" approaches are critical reaching beyond environmental organizations and encompassing all business processes. Simple formalization current 'stovepipe" processes can meet the letter of the EMS requirement, but this simplistic approach produces little value, outside of a "check" in the EMS box. While previous management initiatives (MBO, TQM, etc.) have often fallen victim to process over value; EMS requirements offer considerable potential value to the Army, through focused, prioritized critical process improvements to sustain the future Army. EMS should reach beyond simple compliance, and further sustain the mission.

The Army faces many contemporary and daunting mission challenges. Army Congressional testimony identified numerous influences "encroaching" upon the Army's ability to address and sustain mission requirements; urban encroachment along installation fence lines, competition with the private interests for critical resources (communication spectrums, land, water, etc.), regional constraints (transportation, air quality, etc.), environmental constraints (endangered species, etc.), and other pressures that installations cannot solve, acting alone. These pressures have become familiar over the last few decades, but solutions are often stymied by fragmented ("stovepiped"), reactive responses; insuring a ineffective and tardy response. "Business as usual" is not working.

Against that backdrop, a major initiative at Forts Bragg, Lewis, Hood and Carson (and soon at Forts McPherson and Campbell) deals with the concept of "installation sustainability (IS)". Learning from private industry experiences, IS requires involvement of all installation organizations, community leaders, and regulatory stakeholders, addressing those issues that really matter. Critical issues are those that limit the installation's ability to sustain the Army mission and requisite economic, natural, and human resources and capital over the long-term. As nothing supercedes the goal of mission sustainability, any issue supporting that objective is paramount. The IS process, evolving as new installations are added, requires the commitment of the installation leadership, the collaborative establishment of 25 year installation sustainability goals, and the establishment of teams, including external stakeholders, to address each installation goal. These appear consistent with the first core elements of an EMS: (1) the establishment of environmental policy; through committed leadership, a framework for implementation, and collaboration and communication among the external and internal stakeholders; (2) comprehensive planning to identify and address issues (evaluations of activities, aspects, impacts, and legal requirements), the establishment of objectives and targets, and the establishment of a program to manage the process; and (3) implementation and operation; establishing a management structure with clear responsibilities, training, communication, documentation, and document and operational control.

All participating installations are progressing along this path, consistent with these first three EMS elements. Teams are established with defined responsibilities, authorities, and accountability, and the required sustainability program (for each installation) is being developed. These installations, are creating a "compass" for EMS implementation, establishing the broad installation goals and objectives; without which, EMS can easily "derail", addressing issues that don't matter to long-term installation viability.

The final core elements of EMS include (4) checking and corrective action; monitoring of progress, identification of nonconforming activities, record keeping and audits; and (5) management review; establishment of standard management procedures and review processes. These essential core elements, addressed within IS, are also consistent with the emerging CSA "balanced scorecard" program, the Strategic Readiness System (SRS). SRS requires each Army organization to report to the CSA (annually) and their command group (quarterly). IS goals and progress are being properly incorporated into SRS.

If EMS implementation exploits natural affinity with IS and SRS, this compliance requirement can be embedded within "mainstream" Army management, a goal of the Army's environmental program since its inception in the early 70's. More importantly, all organizational components of an installation, including the environmental office, can focus their combined efforts on common installation and Army goals. As sustainable businesses have found, this "total systems" approach, focused on business goals, can eliminate external pressures within existing resources, as "cross-purpose" activities are eliminated and resources are redirected. IS can produce champions for EMS, through it's focus on mission sustainability. As the Army transforms, a proper EMS, integrated with IS and SRS, can become a major contributor to a sustainable Army mission.

ENVIRONMENTAL SUSTAINABILITY in LATIN AMERICA and THE CARIBBEAN

By Sonia Gutkin, Army Environmental Policy Institute

Preliminary analysis to the World Summit on Sustainable Development (WSSD), held in Johannesburg, South Africa from August 26 to September 4, 2002 revealed that the environmental situation in Latin America and the Caribbean is still of great concern. A decrease of environmental quality with an increase in poverty in the region indicates that it will not be easy for Latin America and the Caribbean to confront its economic crisis and environmental degradation at the same time.

As concluded at The World Summit on Sustainable Development (WSSD) the next step toward sustainability in Latin America and the Caribbean will include actions that should focus on making sustainability happen through:

Current environmental conditions in Latin America and the Caribbean show an increased percentage of poverty in all countries of the region.

- Multilateral cooperation -different sectors and organizations will be included-
- Promotion of inter-regional cooperative actions including scientific and technological cooperation
- Promotion of sustainable development ethics
- Implementation of actions and partnerships

Current environmental conditions in Latin America and the Caribbean show an increased percentage of poverty in all countries of the region. Environmental issues such as continued deforestation, land degradation, poor air quality and an inadequate access to clean water burden more heavily on the poor. Recent programs such as those from the World Bank consider poverty and environment in a single strategy to diminish both issues at the same time.

In this context, there are new challenges for governments in Latin America and the Caribbean. Studies find that environmental degradation may lead in the instability of a region. Therefore, preventing environmental stress and instability is a challenge but also an opportunity for the United States Military and Latin America and the Caribbean n Military to cooperate and share knowledge.

The Economic Commission for Latin American and the Caribbean (ECLAC) and United Nations Environmental Program (UNEP) presented a synthesis of regional priorities at the WSSD. Those priorities are listed as follow: a) Protection and sustainable use of ecosystems and biodiversity, and access to genetic resources, b) Vulnerability in regarding natural disasters, c) Water Management and Policies reform, d) Energy Management and Kyoto Protocol, e) Urban Management, f) Institutional underpinnings of sustainable development.

In conclusion, the reality in Latin America and the Caribbean reveals that the region is in the preliminary stages of a transition to sustainable development. Major challenges include the analysis of environmental sustainability in a context of economic development, progress in science, technology, innovation, adaptability and protection of intellectual property. It is clear that this is a good moment for governments to interact for the common goal of protecting quality of life.

Sonia Gutkin, is an ORISE participant at AEPI. She received her Masters degree in Public Policy from the Georgia Institute of Technology. Her research interests are environmental security, sustainability and international policy. For more information, please contact Mrs. Gutkin at sgutkin@aepi.army.mil or at 404-524-9364, ext 294

WAR COLLEGE FELLOWS: RESEARCH ABSTRACTS

Soldiers: The Importance of Bio-technology for Force Health Protection

By: LTC Susz Clark

Carl Von Clausewitz wrote that a blow directed against a center of gravity has the greatest effect. Soldiers, as the Army's powerful hub for transformation, are, metaphorically, the Army's center of gravity. Soldiers integrate technology, doctrine, and warfighting skills to create the centripetal force that Clausewitz described as necessary to maintain an armed forces' balance. Currently, the most lethal weapons that terrorists possess in their arsenal are biological and chemical weapons of mass destruction (WMD) because these weapons strike at the U. S. Army's center of gravity----it's soldiers. Terrorists, by striking at the biology of the Army's center of gravity, can achieve an effects-based calamity that, by contaminating and killing soldiers, can degrade the Army's capabilities. As such, it is imperative to research, design, then field a force health protection net for soldiers that provides early detection of bio-chemical attacks, protection during the attacks and projection of both short and long-term health effects from exposure to the bio-chemical agents. Currently, knowledge gaps exist in technology that can quantify bio-chemical exposures, science that defines dose-related physiologic responses, and validated research that analyzes the long-term health effects of either acute or chronic exposures. Health outcomes from combining bio-chemical exposures with an individual's genetic makeup and other confounding variables such as stress, heat, noise, and fatigue cannot be defined until an individual's internal dose of the toxin can be measured. New WMD that include biological and chemical toxin combinations demand a technology that can quantify toxin exposure in order to predict health responses. The current lack of such technology prevents appropriate medical resource allocation, hinders policy development, and can lead to operational risks. Current force health protection doctrine and policy that focuses on minimizing exposure to toxins or defining the toxin then implementing appropriate controls, must change to include bio-technology in order to provide a comprehensive health protection net for both deployed and garrisoned service members. This paper will analyze the issues, discuss potential implications, and make recommendations for force health protection policy and doctrine development related to the use of bio-technology as a strategic enabler of force health protection.

Measuring Readiness for Army Response to Domestic WMD Events

by Col Jan Harrington

The US Military, especially the National Guard, has a mission to assist civil authorities in the event of domestic emergencies. Traditionally, these missions have included responses to earthquakes and other natural disasters, civil disturbances, forest fires etc. Since 11 Sept there has been an increasing awareness of the military response to Weapons of Mass Destruction (WMD) events. Unlike more traditional civil support missions, WMD may pose an acute environmental health risk i.e. chemical agents, radiation etc.

Currently military unit readiness measurements are based on preparedness to perform the unit's traditional military mission i.e. number of people assigned vs. authorized, military occupational specialty qualification etc. These measures may have little relevance in response to domestic operations where normally only a part of the unit is called upon and missions may not require a high degree of skills. A more relevant measure of readiness to perform domestic operations, especially in a WMD environment, is the ability of the unit/individuals to perform in environments that pose a health threat.

This paper will propose a domestic operations readiness assessment model (using nuclear/radiological environment as an example) that can be applied to Army units. Areas to be considered include, training, equip ment and medical surveillance programs.

Homeland Security by LTC James Crocker

In the National Strategy for Homeland Security, President Bush describes the future structure and interoperability of Federal, State and Local organizations to insure a secure homeland.

According to President Bush, "*There are three circumstances under which the Department (of Defense) would be involved in improving security at home. In extraordinary circumstances, the Department would conduct military missions such as combat air patrols or maritime defense operations. The Department would take the lead in defending the people and the territory of our country, supported by other agencies. Plans for such contingencies will continue to be coordinated, as appropriate, with the National Security Council, Homeland Security Council, and other federal departments and agencies. Second, DoD would be involved during emergencies such as responding to an attack or to forest fires, floods, tornadoes, or other catastrophes. Finally, the Department of Defense would take part in 'limited scope' missions where other agencies have the lead—for example, security at a special event like the recent Olympics*."

In order to meet these emerging missions the Secretary of Defense has established a fifth Combatant Command "Northern Command" or "NORTHCOM." This new Command will stand up on 1 October 2002 at Colorado Springs. The definitive roles and missions of NORTHCOM have yet to be determined. As those roles and missions are defined, NORTHCOM will have to establish the directed Contingency plans. The result will be a non-traditional Theatre Engagement Plan (TEP). Non-traditional because it will be a defensive plan and with the exception of Canada and Mexico the government and populace that the TEP will influence and impact is their own.

This paper addresses the environmental and occupational health issues that Northern Command will have to consider as they develop their TEP. It will identify environmental vulnerabilities, personal protective equipment, sampling, and incident command issues, and security cooperation concerns with Canada and Mexico.

IDENTIFYING EMERGING OEH ISSUES

by: Keera Cleare, Kcleare@aepi.mil

The Army must be able to look over the horizon, into the next 10 years and beyond, in order to identify and proactively address emerging occupational and environmental health (OEH) issues that can potentially impact force readiness and operations. AEPI is currently conducting an preliminary study to identify and evaluate some of the key issues that may affect the Army's ability to provide a ready force over the upcoming years. The project is divided into two phases. In Phase I, which has recently been completed, representatives from various health organizations were asked to rank order twenty-two occupational and health issues based on the ability to affect military readiness. The results will feed into Phase II, which develops, analyzes and discusses each issue in depth.

The results of the study will not only help protect our soldier's well-being and communities, but will aid in the leveraging of installation's resources, specifically during training. AEPI will conduct follow-on studies with recommendations based on the findings of the report.

PHASE I SUMMARY OF FINDINGS:

An initial list of twenty-two emerging OEH issues were collected from various reports. proceedings, briefings and articles. Subsequently, the list of issues was organized into a survey that asked recipients to select the ten issues they thought could potentially impact force readiness and operations over the next 10 years. The survey was transmitted electronically to senior EOH professionals at eighteen organizations and to three consultants working for Army organizations. A total of sixteen survey responses were completed and returned. All responses are individual opinions, based on their experience, and do not represent the position of the organizations where the respondents work.

Phase I Results:

1. Military unique materials and systems.
2. Environmental health impacts of military-unique compounds.
3. Occupational and Environmental Health policy as related to sustainable design and force protection
4. Inadequacy of existing toxicological databases and the subsequent inability to provide meaningful and useful criteria/standards for occupational and environmental health risk and exposure assessments.
5. Natural mutations, emergence and re-emergence of infectious diseases
6. Homeland Security (HLS)
7. Combined and synergistic effects of contaminants
8. Lack of adequate health hazard models, physiological simulations, decision aids.
9. Natural and engineered threats to blood supply
10. Human health effect of non-lethal weapons ("non-lethal" or "less than lethal")

PHASE II

In Phase II each issue identified will be developed, analyzed and discussed in depth. The discussion topics for each issue would include; Description, State of Science, Analysis of Validity, and Recommendations for action. For example, issue 2, *Environmental health impacts of military-unique compounds*, will further be developed to discuss which compounds are military unique and what are the health impacts. Such compounds could include, Depleted Uranium (DU), Tungsten, and other heavy metal candidates for munitions and armor. New explosives and propellants, their derivatives, fate, transport and environmental metabolites (breakdown products) will also be discussed. The full report will be available March 2003.

WEBSITE REVIEW

The ANSER INSTITUTE for HOMELAND SECURITY

The ANSER, is a not-for-profit public-service research organization examining a new set of national security challenges.

The ANSER Institute for Homeland Security is leading the debate through executive-level education, public awareness programs, workshops for policy makers and a weekly newsletter (with 15,000 subscribers).

Another one of the ANSER's most valuable products is the *Journal of Homeland Security*, which features articles by senior government leaders and leading homeland security experts. It is an interdisciplinary journal devoted to the discussion and analysis of issues related to the subject of Homeland Security. The Journal publishes feature articles, book reviews, commentaries and articles focusing on science and technology relevant to the field of homeland security. Subscribe today!

www.homelandsecurity.org

On Vitrifying Wastes Using a Plasma Arc Torch

In her report, Dr. Marie Johnson reviews the state of the art regarding plasma arc torch vitrification of waste. She provides background by describing the history and environmental benefits of vitrification and the history and design of plasma arc torches.

In addition her research reviews current uses of the plasma torch to heat ex-situ furnaces and develops a case study showing how such a furnace could be used by the Army to pyrolyze scrap tires. This pyrolysis process would benefit the Army by providing an additional source of revenue and insuring an environmental solution to the destruction of the 16 billion scrap tires the Army collects each year.

An immediate research product is a computer model, which allows in-situ heat transfer to be investigated. These model results provide important constraints on in-situ applications of plasma arc technology.

This work provides a theoretical basis for a heretofore empirical technology.

To receive a free copy of this or other AEPI publications, please contact Bob Jarrett at 404-524-9364 ext 271.

AEPI has an extensive list of published books on various environmental topics. Visit our website. All publications are FREE of charge.

environmental conferences and training

May 21-23
Title: Emerging Opportunities for Health Promotion and Health Education: Sailing into New Waters
City: San Diego California
Location: Sheraton San Diego Hotel and Marina
Contact: Diana Felde
Phone: 404-633-6869
Email: d_felde@psava.com
Website: www.astdhpphe.org/nationalconference

ARMY ENVIRONMENTAL POLICY INSTITUTE

Attn: Environmentally Speaking
101 Marietta Street, Suite 3120
Atlanta, GA 30303-2720

WWW.AEPI.ARMY.MIL

"The views expressed in this report are those of the author and do not necessarily reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government."

The Army Environmental Policy Institute (AEPI) supports the Assistant Secretary of the Army for Installations and the Environment (ASA-IE). AEPI assists in developing policies and strategies to improve or resolve environmental issues that may have significant short and long-term impacts on the Army. Since environmental issues continue to emerge as our knowledge and technology develop, AEPI constantly reassesses future environmental challenges and opportunities for the Army. This unique quarterly newsletter was created by collaborative efforts of AEPI's staff to present emerging and current environmental issues that may impact Army policy. We encourage your feedback and welcome suggestions.

AEPI PROGRAM AREAS

- ASA Support/Policy Research and Analysis
- Environmental Legislative/ Regulatory Analysis and Monitoring (ELRAMP)
- Installations and Facilities
- Conservation/Natural and Cultural Resources
- Pollution Prevention/ Energy/ Acquisition
- Emerging Non-Traditional Security Issues (ENSI)
- Cleanup and UXO Management
- Operations and Environmental Security